Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

WHO guideline on syphilis screening and treatment for pregnant women.

Bibliographic Source(s)

World Health Organization (WHO). WHO guideline on syphilis screening and treatment for pregnant women. Geneva (Switzerland): World Health Organization (WHO); 2017. 47 p. [37 references]

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

NEATS Assessment

National Guideline Clearinghouse (NGC) has assessed this guideline's adherence to standards of trustworthiness, derived from the Institute of Medicine's report Clinical Practice Guidelines We Can Trust.

= Poor = Fair = Good = Very Good = Excellent

Assessment	Standard of Trustworthiness
YES	Disclosure of Guideline Funding Source
	Disclosure and Management of Financial Conflict of Interests
	Guideline Development Group Composition
YES	Multidisciplinary Group
YES	Methodologist Involvement
	Patient and Public Perspectives

	Use of a Systematic Review of Evidence
▮▮▮▮▮	Search Strategy
▮▮▮▮▯	Study Selection
▮▮▮▮▮	Synthesis of Evidence
	Evidence Foundations for and Rating Strength of Recommendations
▮▮▮▮▮	Grading the Quality or Strength of Evidence
▮▮▮▮▮	Benefits and Harms of Recommendations
▮▮▮▮▯	Evidence Summary Supporting Recommendations
▮▮▮▮▮	Rating the Strength of Recommendations
▮▮▮▮▮	Specific and Unambiguous Articulation of Recommendations
▮▮▮▮▮	External Review
▮▮▮▮▯	Updating

Recommendations

Major Recommendations

Definitions for the strength of the recommendations (strong, conditional) and the quality of evidence (high, moderate, low, very low) are provided at the end of the "Major Recommendations" field.

Screening for Maternal Syphilis

Recommendation 1

The World Health Organization (WHO) sexually transmitted infection (STI) guideline recommends screening all pregnant women for syphilis during the first antenatal care visit (strong recommendation, moderate-quality evidence).

Remarks: This recommendation applies to all settings, including settings with high or low prevalence of syphilis.

Screening Strategies

Refer to section 5.3 of the main guideline text for the explanations and flowcharts for the various screening and treatment strategies mentioned (Strategies A-D).

Recommendation 2

In settings with low coverage of syphilis screening and treatment for pregnant women, high loss to follow-up of pregnant women, or limited laboratory capacity, the WHO STI guideline suggests on-site tests (Strategies A, B and C) rather than the standard off-site laboratory-based screening and treatment strategy (conditional recommendation, low-quality evidence).

Recommendation 3

In settings with a low prevalence of syphilis (below 5%), the WHO STI guideline suggests a single on-site rapid syphilis test (RST) be used to screen pregnant women (Strategy A) rather than a single on-site rapid plasma reagin (RPR) test (Strategy B) (conditional recommendation, low-quality evidence).

Recommendation 4

In settings with a high prevalence of syphilis (5% or greater), the WHO STI guideline suggests an on-site RST and, if positive, provision of a first dose of treatment and an RPR test, and then, if the RPR test is positive, provision of treatment according to duration of syphilis (Strategy C). The WHO STI guideline suggests this sequence of tests and treatment rather than a single on-site RST (Strategy A) or a single on-site RPR test (Strategy B) (conditional recommendation, low-quality evidence).

Remarks: These recommendations do not apply to countries that can provide appropriate/high-quality laboratory-based screening and treatment strategies. However, in some settings there may be challenges providing such strategies and/or a sequence of tests. When resources do not permit the use of a sequence of tests, a single on-site RST (Strategy A) is suggested to ensure greater screening coverage despite the number of pregnant women who will be over-treated due to the high rate of false-positive results. Treatment is based on duration of syphilis, according to the WHO guideline for the treatment of *Treponema pallidum* (syphilis) (see the "Availability of Companion Documents" field).

Early Syphilis (Primary, Secondary and Early Latent Syphilis of Not More Than Two Years' Duration)

Recommendation 5

In pregnant women with early syphilis, the WHO STI guideline recommends benzathine penicillin G 2.4 million units once intramuscularly over no treatment (strong recommendation, very low-quality evidence).

Recommendation 6

In pregnant women with early syphilis, the WHO STI guideline suggests using benzathine penicillin G 2.4 million units once intramuscularly over procaine penicillin 1.2 million units intramuscularly once daily for 10 days (conditional recommendation, very low-quality evidence).

When benzathine or procaine penicillin cannot be used (e.g., due to penicillin allergy where penicillin desensitization is not possible) or are not available (e.g., due to stock-outs), the WHO STI guideline suggests using, with caution, erythromycin 500 mg orally four times daily for 14 days or ceftriaxone 1 g intramuscularly once daily for 10 to 14 days or azithromycin 2g once orally.

Remarks: Although erythromycin and azithromycin treat the pregnant women, they do not cross the placental barrier completely and as a result the fetus is not treated. It is therefore necessary to treat the newborn infant soon after delivery (see recommendations 9 and 10 in the WHO guidelines for the treatment of syphilis, which refer to congenital syphilis). Ceftriaxone is an expensive option and is injectable. Doxycycline should not be used in pregnant women. Because syphilis during pregnancy can lead to severe adverse complications to the fetus or newborn, stock-outs of benzathine penicillin for use in antenatal care should be avoided.

Late Syphilis (Infection of More Than Two Years' Duration Without Evidence of Treponemal Infection)

Recommendation 7

In pregnant women with late syphilis (more than two years' duration) or unknown stage of syphilis, the WHO STI guideline recommends benzathine penicillin G 2.4 million units intramuscularly once weekly for three consecutive weeks over no treatment (strong recommendation, very low-quality evidence).

Remarks: The interval between consecutive doses of benzathine penicillin should not exceed 14 days.

Recommendation 8

In pregnant women with late syphilis (more than two years' duration) or unknown stage of syphilis, the

WHO STI guideline suggests benzathine penicillin G 2.4 million units intramuscularly once weekly for three consecutive weeks over procaine penicillin 1.2 million units intramuscularly once a day for 20 days (conditional recommendation, very low-quality evidence).

When benzathine or procaine penicillin cannot be used (e.g., due to penicillin allergy where penicillin desensitization is not possible) or are not available (e.g., due to stock-outs), the WHO STI guideline suggests using, with caution, erythromycin 500 mg orally four times daily for 30 days.

Remarks: Although erythromycin treats the pregnant women, it does not cross the placental barrier completely and as a result the fetus is not treated. It is therefore necessary to treat the newborn infant soon after delivery (see recommendations 9 and 10 in the WHO guidelines for the treatment of syphilis, which refer to congenital syphilis). Doxycycline should not be used in pregnant women. Because syphilis during pregnancy can lead to severe adverse complications to the fetus or newborn, stock-outs of benzathine penicillin for use in antenatal care should be avoided.

Definitions

Quality of Evidence in Grading of Recommendations Assessment, Development and Evaluation (GRADE)

High: The guideline development group is very confident that the true effect lies close to that of the estimate of the effect.

Moderate: The guideline development group is moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low: Confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the true effect.

Very low: The guideline development group has very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of the effect.

Strength of Recommendations

> Strong: Strong recommendations communicate the message that the guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. Strong recommendations are uncommon because the balance between the benefits and harms of implementing a recommendation is rarely certain. In particular, guideline development groups need to be cautious when considering making strong recommendations on the basis of evidence whose quality is low or very low.
> Conditional: Recommendations that are conditional or weak are made when a guideline development group is less certain about the balance between the benefits and harms or disadvantages of implementing a recommendation. Conditional recommendations generally include a description of the conditions under which the end-user should or should not implement the recommendation.

Implications of Strong and Conditional Recommendations Using the GRADE Approach

Implications	**Strong Recommendation "The WHO STI guideline recommends..."**	**Conditional Recommendation "The WHO STI guideline suggests..."**
For patients	Most individuals in this situation would want the recommended course of action, and only a small proportion would not. Formal decision aids are not likely to be needed to help individuals make decisions consistent with their values and preferences.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For clinicians	Most individuals should receive the recommended course of action.	Clinicians should recognize that different choices will be appropriate for each individual and that

Implications	**Strong Recommendation** **"The WHO STI guideline recommends..."**	**Conditional Recommendation** **"The WHO STI guideline suggests..."**
	Adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator.	clinicians must help each individual arrive at a management decision consistent with the individual's values and preferences. Decision aids may be useful to help individuals make decisions consistent with their values and preferences.
For policy-makers	The recommendation can be adopted as policy in most situations.	Policy-making will require substantial debate and involvement of various stakeholders.

Clinical Algorithm(s)

An algorithm titled "Decision-making flowchart for maintaining or introducing new syphilis screening and treatment strategies" is provided in the original guideline document.

Scope

Disease/Condition(s)

Syphilis

Guideline Category

Evaluation

Management

Screening

Treatment

Clinical Specialty

Family Practice

Infectious Diseases

Internal Medicine

Obstetrics and Gynecology

Intended Users

Advanced Practice Nurses

Health Care Providers

Nurses

Physician Assistants

Physicians

Public Health Departments

Social Workers

Guideline Objective(s)

- To provide evidence-based guidance on syphilis screening and treatment for pregnant women
- To support countries to update their national guidelines for syphilis screening and treatment for pregnant women

Target Population

Pregnant women with or at risk for syphilis

Interventions and Practices Considered

1. Screening all patients during the first antenatal visit
2. On-site screening vs off-site laboratory-based screening and treatment
3. Benzathine penicillin treatment for early or late syphilis
4. Alternative treatments: erythromycin, ceftriaxone, azithromycin

Major Outcomes Considered

- Treatment rate (over- and under-treatment)
- Cost per case detected
- Cost per women screened
- Screening coverage
- Side-effects and adverse events associated with medicines and penicillin
- Accessibility
- Partner notification and treatment
- Maternal completion of treatment before delivery
- Maternal complications
- Infant outcomes

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Reviews of the Evidence

The systematic reviews for each priority question were conducted by McMaster University, the World Health Organization (WHO) Collaborating Centre for Evidence-Informed Policy. Evidence for desirable and undesirable outcomes, patient values and preferences, resources, acceptability, equity and feasibility were reviewed from published and unpublished literature. Comprehensive searches for previously conducted systematic reviews, randomized controlled trials and non-randomized studies were performed up to October 2016. Additional searches were conducted to identify studies on patient values and preferences (e.g., qualitative research designs) and resources (e.g., cost-effectiveness studies) (see Annex B in the original guideline document for information on these searches).

Search for Evidence for Effects of Interventions

To avoid duplication of reviews that have been previously published, evidence was searched using a hierarchical approach. The team first searched for synthesized evidence then searched the primary studies for all the factors needed to complete the evidence-to-decision framework for each question (i.e., benefits and harms, patient values, acceptability, feasibility, equity and costs).

The hierarchical approach consisted of identifying pre-existing synthesized evidence, including from previously published guidelines that included systematic reviews of the literature. The Guideline Development Group (GDG) updated the searches of relevant systematic reviews to determine if more recent randomized controlled trials (RCTs) and non-randomized studies were available.

The search strategies were developed by an information specialist trained in systematic reviews. The strategies included the use of keywords from the controlled vocabulary of the database and text words based on the Population, Intervention, Comparator, Outcome (PICO) questions. There were no restrictions based on language, publication status or study design (with the exception of searches for systematic reviews). The Cochrane Library suite of databases (Cochrane Database of Systematic Reviews [CDSR], Database of Abstracts of Reviews of Effects [DARE], Health Technology Assessment [HTA] database and the American College of Physicians [ACP] Journal Club) was searched for published systematic reviews and protocols up to October 2016.

Relevant systematic reviews (see the "Availability of Companion Documents" field) were updated by searching for additional primary studies (i.e., published since the latest publication date included in the previous search) in the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE databases (up to October 2016). The strategies included searching for subject headings and text words related to syphilis and specific interventions and tests. Additional strategies included checking reference lists and consulting with the GDG for any missed articles.

See Annex B in the original guideline document for the search strategy.

Screening Studies

Two researchers independently screened titles and abstracts of systematic reviews identified through database searching to determine studies eligible for inclusion in the analysis. Disagreements were resolved by discussing study inclusion with a third member of the research team.

See the WHO guidelines for the treatment of *Treponema pallidum* (syphilis) (see the "Availability of Companion Documents" field) for literature search and selection information for treatment recommendations.

Number of Source Documents

28 reviews and studies were included. Refer to the PRISMA flow chart in Annex B of the original guideline document for the results of the search. See Annex C in the WHO guidelines for the treatment of *Treponema pallidum* (syphilis) (see the "Availability of Companion Documents" field) for numbers of studies supporting specific recommendations.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence in Grading of Recommendations Assessment, Development and Evaluation (GRADE)

High: The guideline development group is very confident that the true effect lies close to that of the

estimate of the effect.

Moderate: The guideline development group is moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low: Confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the true effect.

Very low: The guideline development group has very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Reviews of the Evidence

The quality/certainty of the evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. Evidence came primarily from modelling of the patient-important outcomes which were based on appropriate inputs such as screening rates, diagnostic test accuracy and the effects of treatments. Therefore, the overall certainty of the evidence was based on the inputs and linking of these data in the model. The quality/certainty of the evidence was assessed at four levels (see the "Rating Scheme for the Strength of the Evidence" field).

Data Extraction and Analysis

Data were extracted from the systematic reviews and studies. When data could not be pooled across studies, narrative synthesis methods were used. Results were presented in tables or were narratively described by direction of the effect or by statistical significance as reported in the primary study.

Since there was little data directly comparing screening to no screening or comparing different test strategies to each other or comparing the effect on patient important outcomes, cost-effectiveness modelling studies were used to provide evidence. For the question comparing screening to no screening, data from a previously published cost-effectiveness analysis were used. The number of infant outcomes was extracted from the model and then presented. For the question comparing different test strategies, the evidence was modelled from test accuracy data and from the calculated effects on patient important outcomes. A published cost-effectiveness analysis used: field data for the screening and treatment rates of syphilis in countries with low and high prevalence of syphilis; the sensitivity and specificity of single rapid syphilis tests (RSTs) in the field and from published research; and the effects of treatments. The data used in the analysis were confirmed using another unpublished systematic review of test accuracy data of single RSTs. The outputs of the cost-effectiveness analysis were extracted from the model and presented by test strategy and by outcomes for screening rate, treatment rate, missed cases, over-treatment, and cases treated (see Web annex D [see the "Availability of Companion Documents" field]).

Evidence-to-Decision Frameworks

Evidence-to-decision frameworks were developed using GRADEpro software (www.gradepro.org). Evidence-to-decision frameworks present the desirable and undesirable effects of the interventions, the value of the outcomes, the costs and resource use, the acceptability of the interventions to all stakeholders, the impact on health equity, and the feasibility of implementation (i.e.,

the Grading of Recommendations Assessment, Development and Evaluation [GRADE] criteria for making decisions). The evidence-to-decision frameworks are based on a population perspective for these recommendations. All GRADE criteria were considered from this perspective. The evidence-to-decision frameworks for each recommendation are available in Web annex D.

See the WHO guidelines for the treatment of *Treponema pallidum* (syphilis) (see the "Availability of Companion Documents" field) for methods used to analyze the evidence for treatment recommendations.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Guideline Development Group (GDG)

To update the World Health Organization (WHO) guidelines for the prevention, treatment and management of sexually transmitted infections (STIs), a GDG was established, comprising 33 international STI experts, including clinicians, researchers and programme managers. A core subgroup to focus on the guidelines related to syphilis was created within the GDG, to provide more intensive feedback throughout the process. The GDG participated in meetings and teleconferences to prioritize the questions to be addressed, discuss the evidence reviews and finalize the recommendations. Additional sub-working group teleconferences were organized to review the methodology and results of systematic reviews and to discuss and finalize the evidence reviews and recommendations. The GDG reviewed and approved the final version of the guidelines.

Questions and Outcomes

To determine which recommendations to update, in December 2013 the WHO Department of Reproductive Health and Research reviewed current recommendations of key international guidelines. See Annex B in the original guideline document for a list of the guidelines.

In December 2013, the first GDG meeting was held to identify and agree on the key PICO (Population, Intervention, Comparator, Outcome) questions that formed the basis for the systematic reviews and the recommendations. Following this meeting, a survey of GDG members was conducted to prioritize the questions and outcomes according to clinical relevance and importance. PICO questions were identified for syphilis screening for pregnant women including questions relating to the options of no screening, mass treatment and test strategies using different tests. Only outcomes that were ranked as critical or important to patients and decision-making were included (see the "Major Outcomes Considered" field).

Making the Recommendations

The evidence was presented and discussed during a second meeting of the GDG in October 2015, which was facilitated by two co-chairs – one with expertise in GRADE and the other with clinical STI expertise. After discussion, it was decided that additional information should be obtained. Therefore, the screening recommendations were formulated during subsequent teleconference calls and electronic communications with the GDG working group for syphilis. To formulate the recommendations, the GDG working group for syphilis considered and discussed the desirable and undesirable effects of the interventions, the value placed on the outcomes, the associated costs and use of resources, the acceptability of the interventions to all stakeholders (including people affected by STIs), the impact on health equity and the feasibility of implementation.

The GDG working group for syphilis made judgements for each of the above criteria and an overall judgement about each recommendation and the strength of each recommendation was made. If there had been disagreements about the judgements, the planned procedure was for the GDG to take a vote and record the results. However, no votes were taken because the GDG reached consensus during discussion

for all of the judgements and recommendations. Following the discussions of the GDG working group for syphilis, the recommendations were finalized via teleconference and final approval was obtained from all GDG members electronically. This guideline was subsequently written up in full and then peer reviewed.

See the WHO guidelines for the treatment of *Treponema pallidum* (syphilis) (see the "Availability of Companion Documents" field) for methods used to formulate the treatment recommendations.

Rating Scheme for the Strength of the Recommendations

Strength of Recommendations

> Strong: Strong recommendations communicate the message that the guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. Strong recommendations are uncommon because the balance between the benefits and harms of implementing a recommendation is rarely certain. In particular, guideline development groups need to be cautious when considering making strong recommendations on the basis of evidence whose quality is low or very low.
> Conditional: Recommendations that are conditional or weak are made when a guideline development group is less certain about the balance between the benefits and harms or disadvantages of implementing a recommendation. Conditional recommendations generally include a description of the conditions under which the end-user should or should not implement the recommendation.

Interpretation of Strong and Conditional Recommendations for an Intervention

Implications	Strong Recommendation "The WHO STI guideline recommends..."	Conditional Recommendation "The WHO STI guideline suggests..."
For patients	Most individuals in this situation would want the recommended course of action, and only a small proportion would not. Formal decision aids are not likely to be needed to help individuals make decisions consistent with their values and preferences.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For clinicians	Most individuals should receive the recommended course of action. Adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator.	Clinicians should recognize that different choices will be appropriate for each individual and that clinicians must help each individual arrive at a management decision consistent with the individual's values and preferences. Decision aids may be useful to help individuals make decisions consistent with their values and preferences.
For policy-makers	The recommendation can be adopted as policy in most situations.	Policy-making will require substantial debate and involvement of various stakeholders.

Cost Analysis

Since there was little data directly comparing screening to no screening, or comparing different test strategies to each other and comparing their effects on important patient outcomes, cost-effectiveness modelling studies were used to provide evidence. For the question comparing screening to no screening, data from a previously published cost-effectiveness analysis was used. Numbers of infant outcomes were presented.

For the question comparing different test strategies, the evidence was modelled from diagnostic test accuracy data and the calculated effects on important patient outcomes. A published cost-effectiveness analysis used field data for the rates of syphilis screening and treatment in countries with low and high prevalence of syphilis, as well as data on the sensitivity and specificity of single rapid syphilis tests

(RSTs) in the field and from published research, and data on the effects of treatments. The data used in the analysis were confirmed using another unpublished systematic review of test accuracy data of single RSTs. The outputs of the cost-effectiveness analysis were presented by test strategy and by outcomes for screening rate, treatment rate, missed cases, over-treatment and cases treated (see Web annex D [see the "Availability of Companion Documents" field]).

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The External Review Group approved the methods and agreed with the recommendations made by the Guideline Development Group (GDG).

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Universal screening is favoured over no screening because large reductions are likely for important serious adverse outcomes of pregnancy and congenital syphilis in settings with low or high prevalence of syphilis. Universal screening also probably increases equity and is cost-effective. It is likely to be acceptable to pregnant women and health-care providers, and also feasible with training and improved awareness of staff.
- There are indications that mother-to-child transmission of syphilis is beginning to decline globally due to increased efforts to screen and treat pregnant women for syphilis.
- The Guideline Development Group (GDG) agreed that providing a sequence of tests could ultimately increase partner treatment as additional tests may lead to increased belief in the positive results among the tested pregnant women and their partners.

Potential Harms

- Over-treatment resulted in minor side-effects such as gastrointestinal symptoms (and over-treatment is more likely to occur for women with higher titres due to the sensitivity of the tests).
- Non-treponemal tests are not highly specific for syphilis and can give false-positive results in conditions such as acute febrile viral infections and some chronic autoimmune diseases. Most false-positive results have low titres of less than 1 : 4. Non-treponemal tests may be negative for up to four weeks after the lesion of primary syphilis first appears and can be negative in late latent syphilis; additionally in primary and secondary syphilis, these tests may be false negative due to a

prozone reaction (i.e., interference by high concentrations of antibodies in a specimen, which can be uncovered by dilution and retesting).

Contraindications

Contraindications

Doxycycline should not be used in pregnant women. Because syphilis during pregnancy can lead to severe adverse complications to the fetus or newborn, stock-outs of benzathine penicillin for use in antenatal care should be avoided.

Qualifying Statements

Qualifying Statements

- The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization (WHO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
- The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.
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Implementation of the Guideline

Description of Implementation Strategy

Implementation Considerations

Adaptation, Implementation and Monitoring

These guidelines provide recommendations for syphilis screening and treatment for pregnant women, based on the best global evidence available at the time of compilation. However, the epidemiology and antimicrobial resistance (AMR) of sexually transmitted infections (STIs) vary by geographical location and are constantly changing, sometimes rapidly. It is recommended that countries conduct good-quality studies to gather the information needed to adapt these guidelines to the local STI situation as they update their national guidelines. In areas lacking local data as a basis for adaptation, the recommendations in this guideline can be adopted as presented here.

For further guidance on adaptation, implementation and monitoring of national guidelines, please refer to *Introducing the World Health Organization's (WHO's) sexual and reproductive health guidelines and tools into national programmes: principles and processes of adaptation and implementation*

Refer to Section 3 in the original guideline document for information on dissemination and updating of the guideline. Refer to Section 5.2 for information on consideration on the implementation of antenatal syphilis screening and treatment.

Implementation Tools

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

World Health Organization (WHO). WHO guideline on syphilis screening and treatment for pregnant women. Geneva (Switzerland): World Health Organization (WHO); 2017. 47 p. [37 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2017

Guideline Developer(s)

World Health Organization - International Agency

Source(s) of Funding

The preparation and printing of the guidelines were funded exclusively by the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP). No external source of funding was solicited or utilized.

Guideline Committee

STI Guideline Development Group (GDG)

Composition of Group That Authored the Guideline

Guideline Development Group

Chairpersons: Judith Wasserheit, Holger Schünemann and Patricia Garcia

Members: Yaw (Sax) Adu-Sarkodie, Andrew Amato, Gail Bolan, John Changalucha, Xiang-Sheng Chen, Harrel Chesson, Craig Cohen, Francisco Garcia, Suzanne Garland, Sarah Hawkes, Mary Higgins, King Holmes, Jeffrey Klausner, David Lewis, Nicola Low, David Mabey, Angelica Espinosa Miranda, Nelly Mugo, Saiqa Mullick, Francis Ndowa, Joel Palefsky, Keith Radcliffe, Ulugbek Sabirov, Judith Stephenson, Richard Steen, Magnus Unemo, Bea Vuylsteke, Anna Wald, Thomas Wong and Kimberly A. Workowski

Sexually Transmitted Infection (STI) Guideline Development Group (GDG) Working Group for Syphilis: Gail Bolan, John Changalucha, Xiang-Sheng Chen, Patricia Garcia, Suzanne Garland, Jeffrey Klausner, David Mabey, Saiqa Mullick, Joel Palefsky, Ulugbek Sabirov, Richard Steen

STI External Review Group: Laith Abu-Raddad, Chris Akolo, Adele Schwartz Benzaken, Mircea Betiu, Anupong Chitwarakorn, Carolyn Deal, Margaret Gale-Rowe, William M. Geisler, Mary Kamb, Amina El Kettani, Mizan Kiros, Ahmed Latif, Philippe Mayaud, David McCartney, Ali M. Mir, Nuriye Ortayli, Pablo Sanchez, Khantanouvieng Sayabounthavong and Aman Kumar Singh

Refer to Annex A in the original guideline document for additional information.

Financial Disclosures/Conflicts of Interest

Management of conflicts of interest was a key priority throughout the process of guideline development. World Health Organization (WHO) guidelines for declaration of interests (DOI) for WHO experts were implemented. DOI statements were obtained from all GDG members prior to assuming their roles in the group. At the GDG meetings (December 2013 and October 2015), the members disclosed their interests, if any, at the beginning of the meetings. The DOI statements are summarized in Web annex E (see the "Availability of Companion Documents" field).

After analysing each DOI, the WHO STI Secretariat concluded that no member had financial or commercial interests related to sexually transmitted infection (STI) treatment. Other notified interests were minor; they were either not related to STI or were non-commercial grants or interests. The STI team concluded that there were no significant conflicts of interest that would exclude any member from participating fully in the guideline development process. Therefore, options for conditional participation, partial or total exclusion of any GDG member were not discussed.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the World Health Organization (WHO) Web site .

Availability of Companion Documents

The following are available:

WHO guidelines on syphilis screening and treatment for pregnant women. Web annex D: evidence tables and evidence-to-decision frameworks. Geneva (Switzerland): World Health Organization (WHO); 2017. 36 p. Available from the World Health Organization (WHO) Web site .

WHO guidelines on syphilis screening and treatment for pregnant women. Web annex E: summary of the declarations of interest and management of conflicts of interest. Geneva (Switzerland): World Health Organization (WHO); 2017. 16 p. Available from the WHO Web site .

WHO guidelines for the treatment of *Treponema pallidum* (syphilis). Geneva (Switzerland): World Health Organization (WHO); 2016. 49 p. Available from the WHO Web site .

Hawkes SJ, Gomez GB, Broutet N. Early antenatal care: does it make a difference to outcomes of pregnancy associated with syphilis? A systematic review and meta-analysis. PLoS One. 2013;8(2):e56713. Available from the PLoS One Web site .

Shahrook S, Mori R, Ochirbat T, Gomi H. Strategies of testing for syphilis during pregnancy. Cochrane Database Syst Rev. 2014 Oct 29;(10):CD010385. Available from the Cochrane Library Web site .

RogoziÅ„ska E, Kara-Newton L, Zamora JR, Khan KS. On-site test to detect syphilis in pregnancy: a systematic review of test accuracy studies. BJOG. 2017 Apr;124(5):734–41. Available from the British Journal of Obstetrics and Gynaecology Web site .

WHO handbook for guideline development. 2nd edition. Geneva (Switzerland): World Health Organization (WHO); 2014. 167 p. Available from the WHO Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on February 14, 2018. The guideline developer agreed to not review the content.

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